

Claims

- [c1] 1. A packaging structure comprising:
a substrate, having a substrate surface;
a chip, attached onto the substrate surface and electrically connected to the substrate;
a heat slug, attached onto the substrate surface in a manner to cover the chip, the heat slug including an outer heat dissipating surface around which a ringed projection is formed; and
a molding compound, encapsulating the chip, the substrate surface, and a portion of the heat slug while externally exposing the outer heat dissipating surface of the heat slug.
- [c2] 2. The packaging structure of claim 1, wherein the heat slug peripherally extends into a flange.
- [c3] 3. The packaging structure of claim 2, wherein the flange is provided with a plurality of protrusions through which the heat slug is attached to the substrate surface.
- [c4] 4. The packaging substrate of claim 2, wherein the flange is formed into a single body with the heat slug.
- [c5] 5. The packaging structure of claim 1, wherein a height of the ringed projection is about $10 \mu m$ to about $20 \mu m$.
- [c6] 6. The packaging structure of claim 1, wherein a width of the ringed projection is about $100 \mu m$ to about $500 \mu m$.
- [c7] 7. A heat slug for a packaging structure that is externally encapsulated by means of a molding compound, comprising an outer heat dissipating surface around which a ringed projection is formed for preventing the molding compound from covering the outer heat dissipating surface of the heat slug.
- [c8] 8. The heat slug of claim 7, wherein the heat slug peripherally extends into a flange.

- [c9] 9. The heat slug of claim 8, wherein the packaging structure includes a substrate, and the flange of the heat slug is provided with a plurality of protrusions through which the heat slug is attached to a surface of the substrate.
- [c10] 10. The heat slug of claim 8, wherein the heat slug and the flange are formed into a single body.
- [c11] 11. The heat slug of claim 7, wherein a height of the ringed projection is about 10 μ m to about 20 μ m.
- [c12] 12. The heat slug of claim 7, wherein a width of the ringed projection is about 100 μ m to about 500 μ m.
- [c13] 13. A method of fabricating a packaging structure provided with a heat slug, the method comprising:
providing a substrate onto which a chip is mounted and electrically connected;
providing a heat slug including an outer heat dissipating surface around which is formed a ringed projection, the heat slug peripherally extending into a flange;
mounting the heat slug onto the substrate via attaching the flange of the heat slug onto the substrate, the heat slug being placed over the substrate in a manner to cover the chip;
mounting the substrate with the heat slug in a mold, the mold including a mold cavity that has an inner surface, the heat slug being received in the mold cavity with the ringed projection tightly abutting against the inner surface of the mold cavity; and
injecting a molding compound into the mold cavity to encapsulate the chip, the substrate surface, and the flange of the heat slug while leaving the outer heat dissipating surface of the heat slug exposed.
- [c14] 14. The method of claim 13, wherein a height of the ringed projection is about 10 μ m to about 20 μ m.
- [c15] 15. The method of claim 13, wherein a width of the ringed projection is about 100 μ m to about 500 μ m.

- [c16] 16. The method of claim 13, wherein the ringed projection prevents the molding compound being injected from flowing over the outer heat dissipating surface of the heat slug.